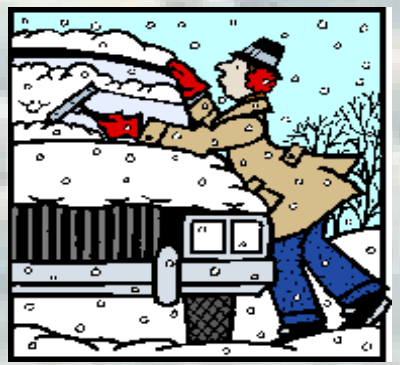
Be Prepared for Winter Driving

Traveler's Tools

RISK MANAGEMENT DRIVING DECISIONS

- CAN I DO THIS LATER?

- AM I PREPARED FOR EMERGENCIES?



You must Understand how cold weather's effect’s your vehicle before, during and after operation.

Vehicle Preparation

Routine precautions help you avoid starting problems:

- **Get an engine tune-up in the fall.**
- **Be sure all lights are in good working order.**
- **Have the brakes adjusted.**
- **Remember to switch to winter-weight oil if you aren't already (using all-season oil).**
- **Battery and voltage regulator should be checked.**

Vehicle Preparation

Make sure battery connections are good.

- **If the battery terminal posts seem to be building up a layer of corrosion, clean them with a paste of baking soda and water. Let it foam, and then rinse with water. Apply a thin film of petroleum jelly to the terminal posts to prevent corrosion, and reconnect.**

- **Be sure all fluids are at proper levels.**

Vehicle Preparation

- **Antifreeze should not only be strong enough to prevent freezing, but fresh enough to prevent rust.**

- **Make sure wiper blades are cleaning properly. Consider changing to winter wiper blades, which are made for driving in snow. They are covered with a rubber boot to keep moisture away from working parts of the blade.**

Vehicle Preparation

- **The exhaust system: Have the exhaust system fully checked for leaks that could send carbon monoxide into your vehicle.**
- **Heating and cooling system: Check your radiator and hoses for cracks and leaks. Make sure the radiator cap, water pump and thermostat work properly. Test the strength of the anti-freeze, and test the functioning of the heater and defroster.**

Vehicle Preparation

- **Windshield: Make sure wipers are in good condition and fill up on winter washer fluid. Ensure your windshield can give you clear vision of the road and traffic around you.**
- **One way to find a good repair facility to tune-up your vehicle is to look for an ASI Approved Auto Repair Services sign at garages or ask a friend.**

Vehicle Preparation

- Stay in your car until help arrives

HOT HOT HOT -- DON'T FORGET TO FILL UP WITH FUEL

Don't forget the gloves. Your fingers will stick to the c

Essential Supplies

Here's what you'll want to have on hand, especially in an emerg

- ✓ **Snow shovel.**
- ✓ **Scraper with a brush on one end.**
- ✓ **Tow chain or strap.**
- ✓ **Warning device (flares or reflective triangles).**

Essential Supplies

Here's what you'll want to have on hand, especially in an emergency (Con't):

- ✓ **Flashlight (with extra batteries)**
- ✓ **Abrasive material (cat litter, sand, salt, or traction mats).**
- ✓ **Compass, Warning light or road flares, Booster cables**
- ✓ **First Aid Kit**

Be Prepared for Winter Driving

- Before
- During
- After

Weather

Winter Deaths

Everyone is potentially at risk during winter storms. The actual threat to you depends on your specific situation. Recent observations indicate the following:

- **Related to ice and snow:**
  - ✓ **About 70% occur in automobiles.**
  - ✓ **About 25% are people caught out in the storm.**
  - ✓ **Majority are males over 40 years old.**

Weather

FLURRIES - Light snow falling for short durations. No accumulation or light dusting is all that is expected.

SHOWERS - Snow falling at varying intensities

for brief periods of time. Some

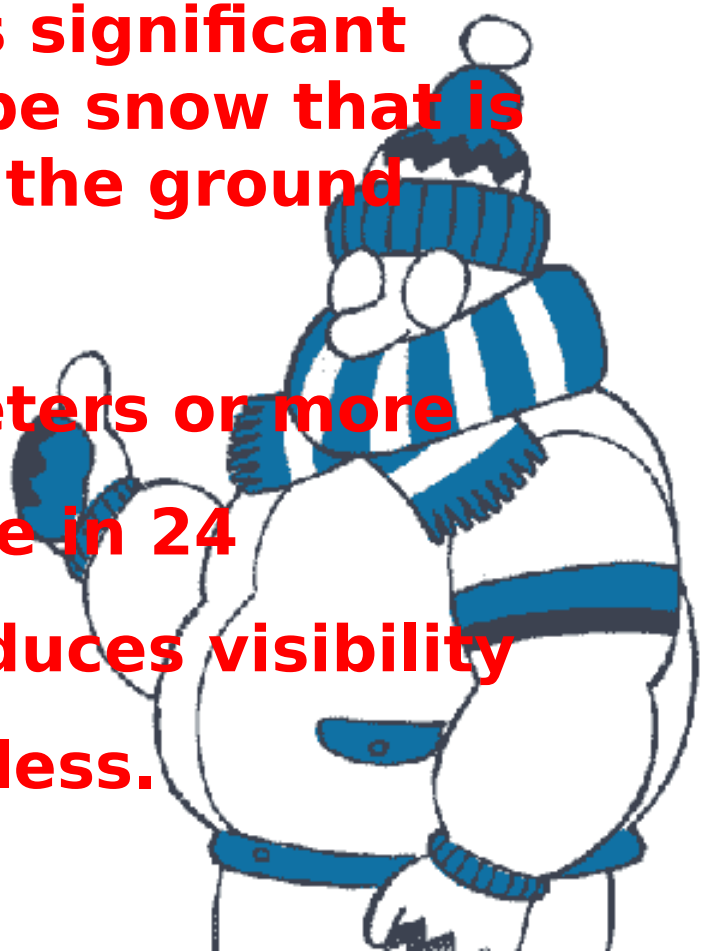
accumulation is possible.

SQUALLS - Brief, intense snow showers accompanied by strong, gusty winds. Accumulation may be significant. Snow squalls

Weather

BLOWING SNOW - Wind-driven snow that reduces visibility and causes significant drifting. Blowing snow may be snow that is falling and/or loose snow on the ground picked up by the wind.

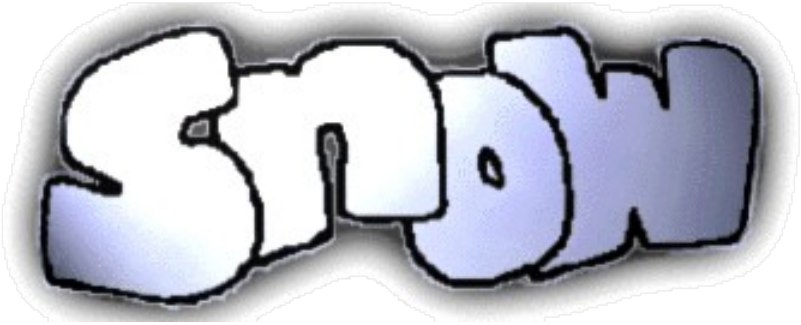
Heavy snow - Ten centimeters or more in 12 hours, or 15 cm or more in 24 hours, and snow falling reduces visibility up to a quarter of a mile or less.



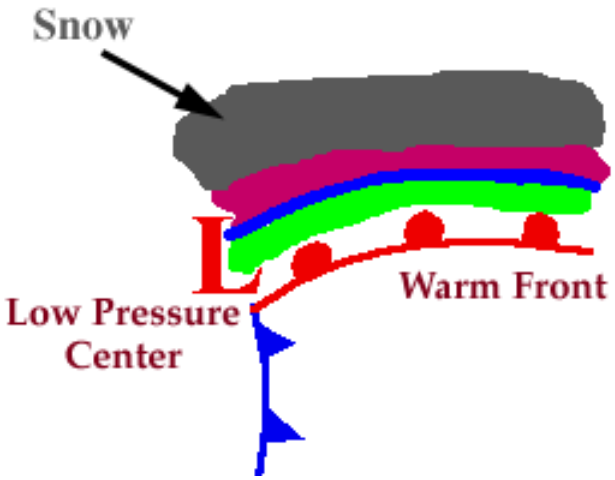
Weather

Snow

Snow is frozen precipitation in the form of six-side crystals. Snow is produced when water vapor is deposited directly into o airborne particles as ice crystals, which remain frozen as they fall. When temperatures remain below freezing from the cloud to the ground, snow results.

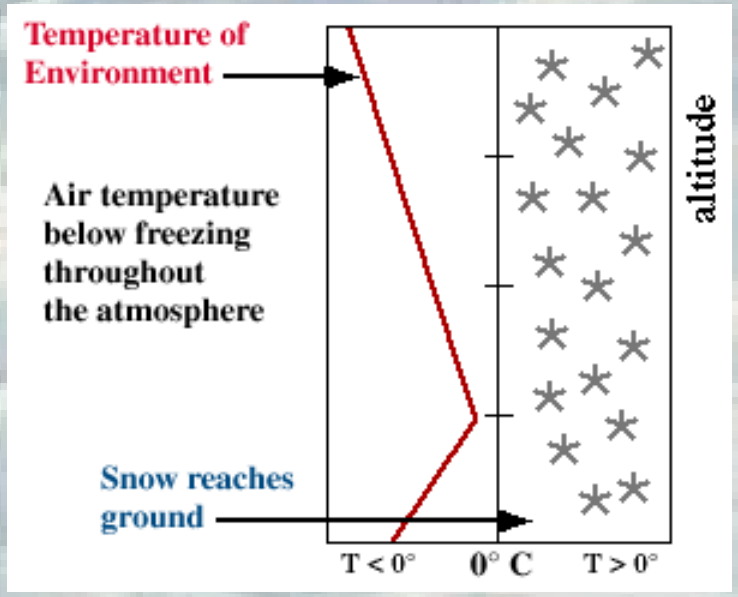


Progressing even further away from the warm front, surface temperatures continue to decrease and the sleet c] v.



Snow-flakes

Snowflakes are simply aggregates of ice crystals that collect to each other as they fall toward the surface.



Weather

BLIZZARD - The most perilous of winter storms combining falling, blowing, drifting snow, winds of 40 km/hour or more, visibility less than 1 km, temperatures less than -10 C; duration: six hours or more.

Cold Wave - A rapid fall in temperature in a short period, requiring greater than normal protective measures.

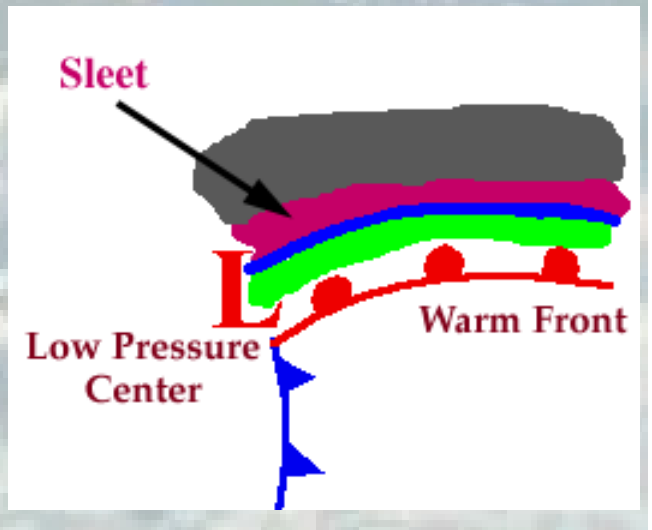
Winds The cause of blizzard conditions, drifting, reduced visibility and wind-chill

Weather

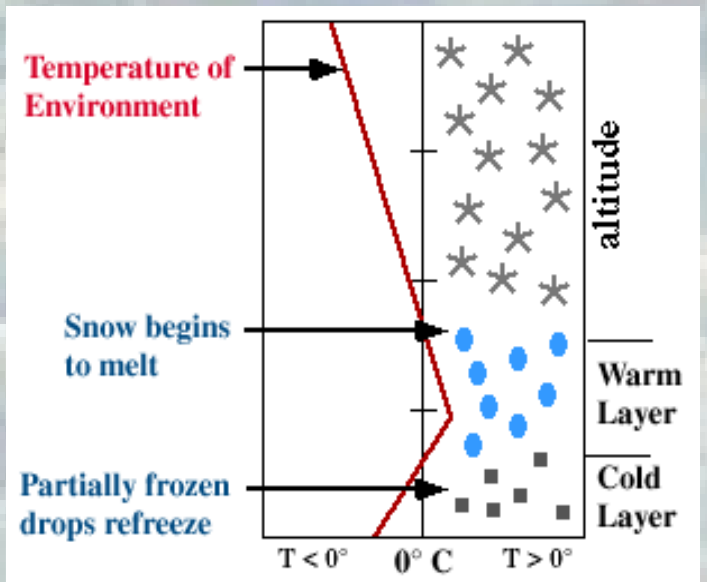
Sleet falls to earth as ice pellets. These ice pellets are formed as snowflakes melt into raindrops as they pass through a thin layer of above-freezing air. The rain drops than refreeze into particles of ice as they pass through a sub-freezing layer of air near the ground.

Sleet

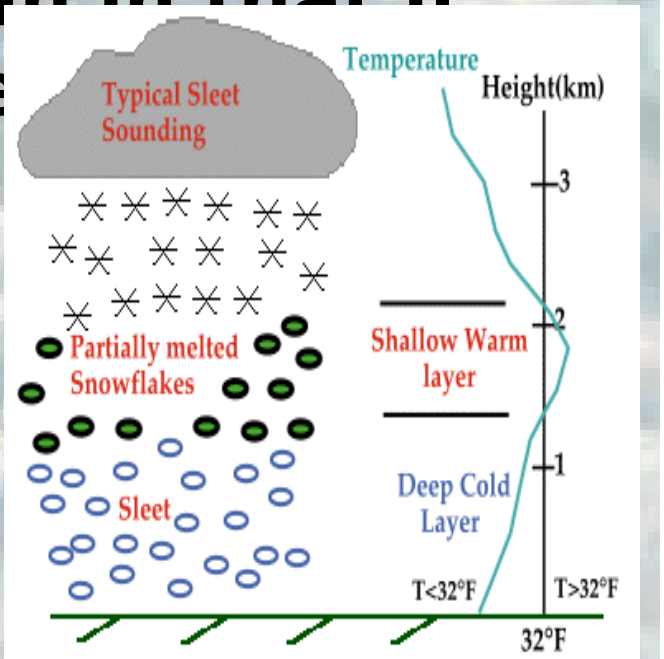
Progressing further ahead of the warm front, surface temperatures continue to decrease and the freezing rain eventually changes over to sleet. Areas of sleet are located on the colder side (typical
the freezing rain band.



Sleet is less prevalent than freezing rain and is defined as frozen raindrops that bounce on impact with the ground or other objects.



Sleet is more difficult to forecast than freezing rain because it develops under more specialized atmospheric conditions. It is very similar to freezing rain in that it causes surfaces to be very slick, but is different because its easily visible.

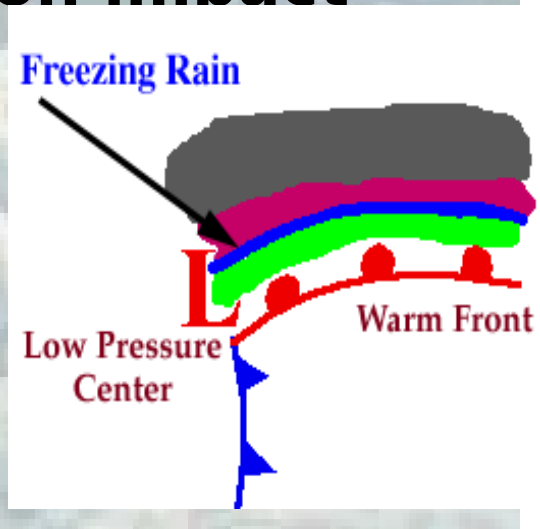


Freezing Rain

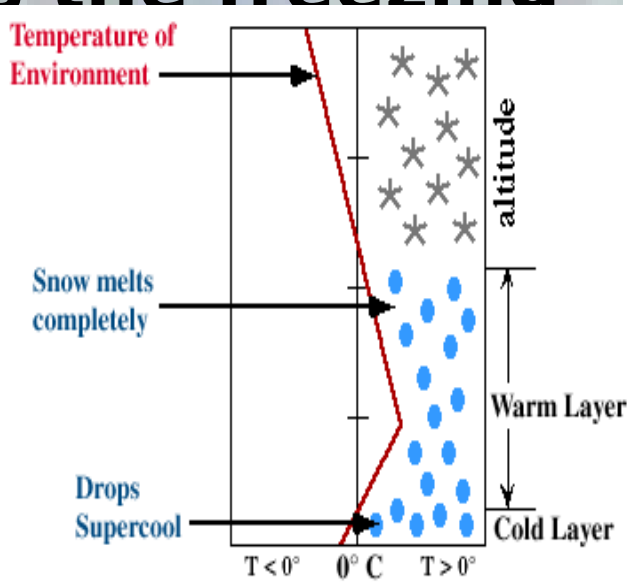
- **Freezing rain is caused by rain droplets that freeze on contact with the ground or objects near the ground, leaving a frozen glaze. The temperature of the ground must be below freezing, and the rain droplets must exist in a liquid state at temperatures below freezing for freezing rain to occur.**

- **Freezing rain can glaze roadways with ice causing extremely hazardous driving conditions.**

Ice storms can be the most devastating of winter weather phenomena and are often the cause of automobile accidents, power outages and personal injury. Ice storms result from the accumulation of freezing rain, which is rain that becomes super cooled and freezes upon impact with cold surfaces. Freezing commonly found in a narrow cold side of a warm gront, where surface temperatures at or just below freezing.



The diagram below shows a typical temperature profile for freezing rain with the red line indicating the atmosphere's temperature at any given altitude. The vertical line in the center of the diagram is the freezing line. Temperatures to the left of the line are below freezing, while temperatures to the right are above freezing



Weather

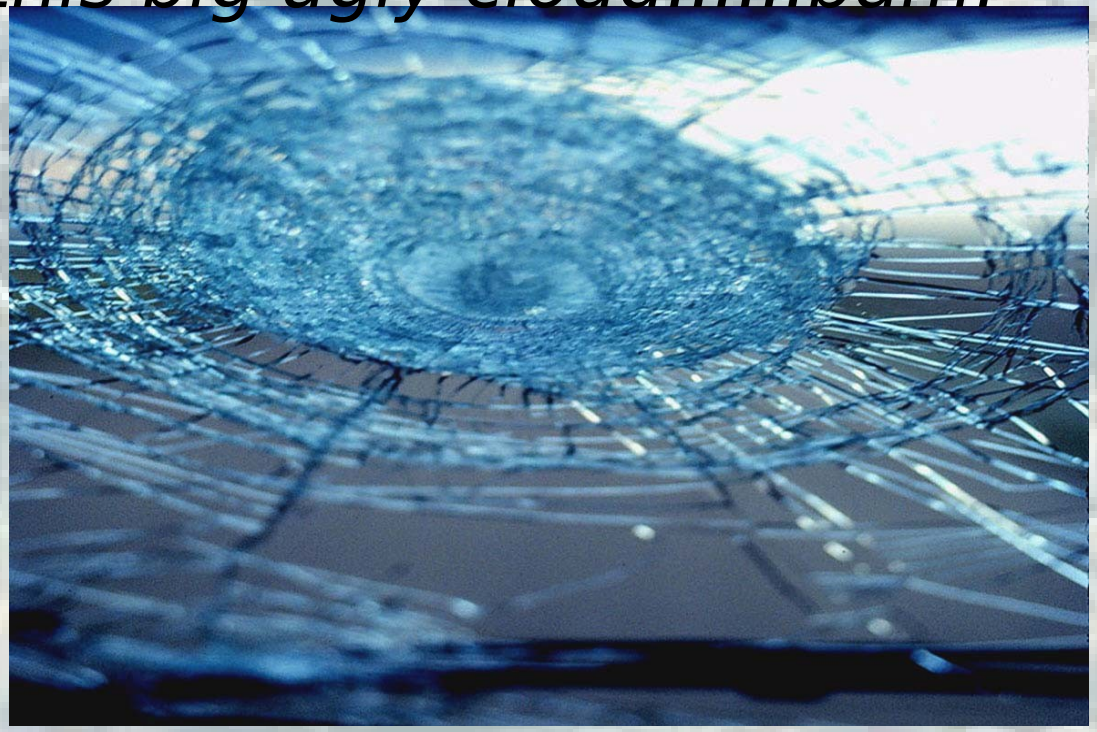
ICE

Expect icy conditions any time the outside air temperature reaches 40 degrees F or lower. Although water freezes at 32 degrees F, road surface can freeze when the air temperature drops to 40 degrees or less.

An important place to watch for this condition is on bridges. Bridge surfaces are exposed to the wind and cool off faster than the rest of the road.

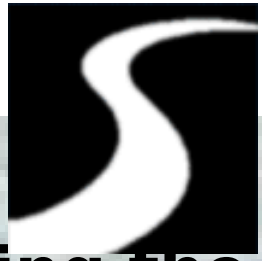
You should also prepare for icy conditions on roads through shaded areas where a

Visualize a baseball dropped from a 747 flying at 30,000 feet; it's speed reaches 120 MPH, visualize you going 70 MPH under this big ugly cloud.....bam!



Weather

WHITE ICE



Snow that has been compacted during the day and has slightly melted will freeze at night. Usually this white ice can be seen on the road. When traveling on white ice, drive very slowly. If you cannot find a place to park until conditions improve, install tire chains for better traction.

Slick trick -- Watch for slippery spots called glare ice. These may appear on an otherwise clear road in shaded areas. If you see a patch of ice ahead, brake before reaching it and try not to brake while actually on the ice

Black Ice

- Black ice fools drivers. Its shine tricks them into thinking it's water on the road. What they may not realize is that condensation, such as dew, freezes when temperatures reach 32 degrees or below. This forms an extra-thin layer of ice on the road.
- This shiny ice surface is one of the most slippery road conditions. Black ice is likely to form first under bridges and overpasses, in shady spots and at intersections.

FOLLOW THE TEN-POINT PLAN FOR SAFER WINTER DRIVING

Hand in hand with winter comes heavy rain, fog, ice and snow. Bad weather affects visibility and stopping distances. Follow this ten-point plan and be a safer winter driver.

1. Allow extra time for your journey and reduce your speed.

2. Increase the distance between you and the vehicle in front and be certain you can stop within the distance you can see to be clear.

3. If visibility is seriously reduced by fog, use dipped headlights and rear fog lights. Switch on your wipers to keep your windscreen clear.

4. Remember to turn fog lights off when they are no longer needed as they can be a distraction to other drivers.

5. Remember the obvious - you can see snow, but you can't always see ice.

7. Keep your windscreen clear of snow and check from time to time that there is not a build up of snow on your lights.

8. Carry a shovel, extra warm clothing, a blanket, a snack and a drink - especially if you are traveling through isolated areas.

9. If you are going on a long journey, advise someone of your destination and what time you expect to arrive.

10. If you feel uncomfortable driving in bad weather, consider whether your journey is really necessary or whether you can go by an alternative to the car.

When do I use Fog Lights?

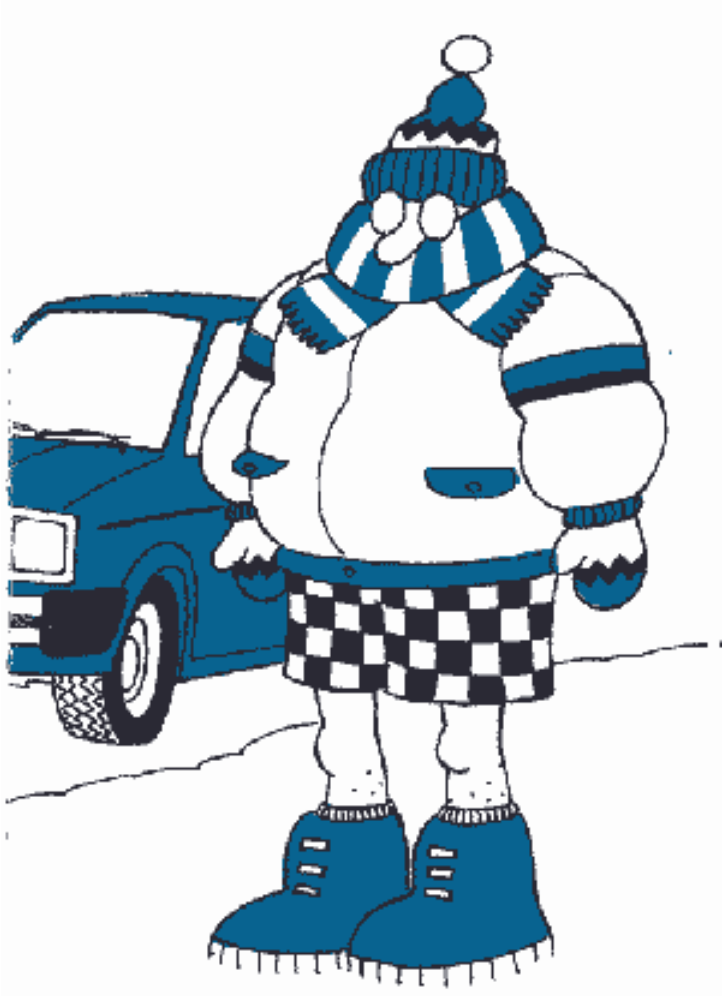
Fog lights are designed to be used during fog or foul weather, in conjunction with your low beams to focus as much light as possible on the ground directly in front of you. Providing increased light on the ground helps you to follow the road and helps reduce the reflection on the fog from your headlights.

Fog Safety Tips:

- Drive with lights on low beam
- Reduce speed
- Avoid crossing traffic unless absolutely necessary
- Listen for traffic you cannot see

Fog Safety Tips (Con’t):

- Use wipers and defroster as necessary for maximum vision
- Be patient! Don’t pass lines of traffic
- Unless absolutely necessary, don’t stop on any freeway or other heavily traveled road
- Consider postponing your trip until the fog clears



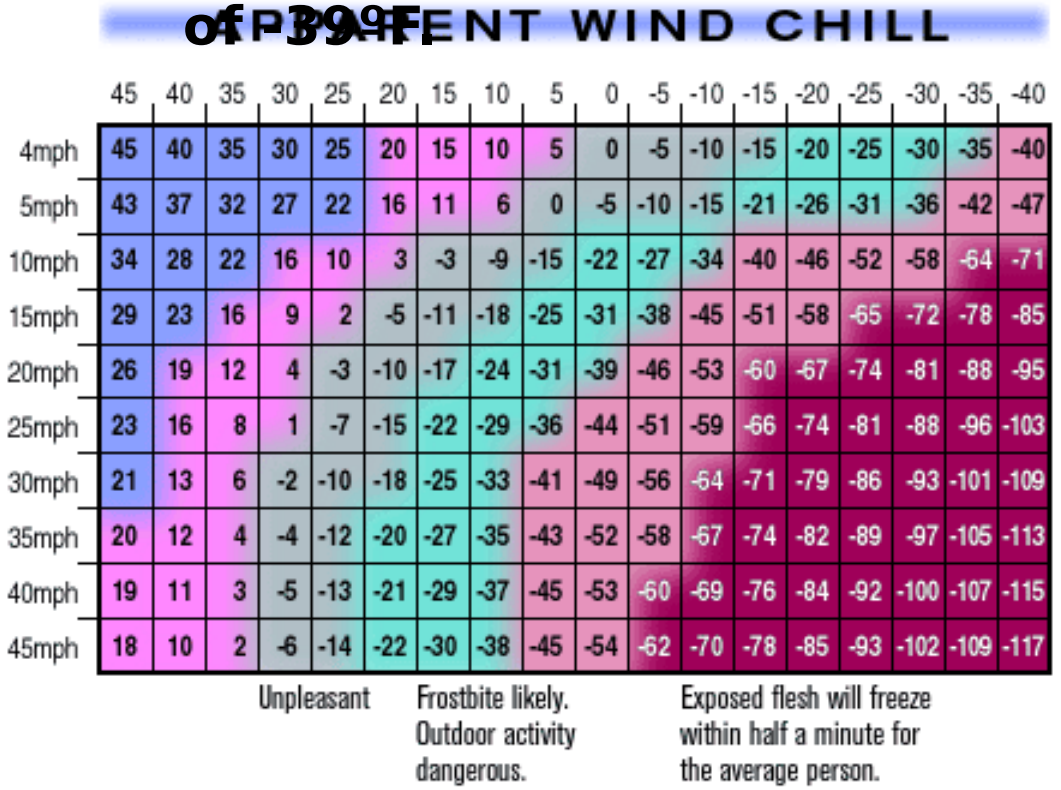
Dress Properly

- ✓Wear several layers of thick loose-fitting clothing.
- ✓Wear a hat, scarf and turtleneck sweater.
- ✓The head and neck lose heat faster than any other part of the body.
- ✓Dress for the cold.
- ✓Don’t forget a hat and gloves

Examples of wind chill:

- with a temperature of -15°F and winds blowing at 35 mph, the wind chill index would be -74°F and would cause exposed skin to freeze in 30 seconds
- with the temperature of 15°F and winds blowing at 35 mph, the wind chill index would be -27°F, which would likely cause frostbite and make outdoor activities dangerous

Read right and down from the calm-air line. For example, a temperature of 0ºF combined with a 20 mph wind, has an equivalent cooling effect of -39ºF



Risk Management Reminders

Prepare the driver

- **If you must drive in bad weather, plan ahead and make sure you have enough fuel.**
- **See and be seen; clear all snow from the hood, roof, windows and lights.**
- **Clear all windows of fog.**
- **If visibility becomes poor, find a place to safely pull off the road as soon as possible.**

Prepare the driver

- **Wear warm clothes that do not restrict movement.**

- **In bad weather, let someone know your route and intended arrival time, so you can be searched for, if you don't turn up after a reasonable delay.**

Comming Soon
What to expect next

- **During**
- After

Remember!

The speed you travel in adverse weather, has a negative correlation to stopping distance and maneuver space.